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27DEC02 E773251-3 D00073
P01/7700 0.00-0229973.3

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

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1. Your reference

JC/SMC/21.12

21 DEC 2002

2. Patent application number
(The Patent Office will fill in this part)

0229973.3

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Supen TAYLOR
61 Warleigh Road
Brighton
East Sussex
BN1 4NS

08038598001

Patents ADP number *(if you know it)*

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

LACES TYING DEVICE

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

G F Redfern & Company
Lynn House
Ivy Arch Road
Worthing
West Sussex
BN14 8BX

Patents ADP number *(if you know it)*

1412002

08435356001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

NO

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9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	-
Description	7
Claim(s)	3
Abstract	1
Drawing(s)	3

10. If you are also filing any of the following, state how many against each item.

Priority documents	-
Translations of priority documents	-
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	-
Request for preliminary examination and search *(Patents Form 9/77)*	1
Request for substantive examination *(Patents Form 10/77)*	1
Any other documents *(please specify)*	-

11. I/We request the grant of a patent on the basis of this application.

Signature C F Redjeon & Co — Date 20 December 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

Mrs S M Camp
01903 820466

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Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.

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Laces Tying Device

This invention relates to a fastening device for use in particular, but not exclusively, with the laces of a shoe.

Young children can find tying their shoelaces difficult due to the relative complexity of the knots required, and due to their lack of finger co-ordination. The elderly and disabled may also find tying shoelaces, or any other laces, awkward for the same reasons.

Numerous shoelace tying devices have been proposed to overcome this problem. UK Patent Application No. 0120108.6, in the name of the applicant, discloses a shoe fastening means for a shoe having an upper, the vamp of which upper is split in conventional manner and is provided with a series of oppositely disposed lace holes in opposed side edge portions thereof for receiving a shoe lace opposite ends of which shoelace are received, in use, in a clutch device, characterised in that, the clutch device is provided with at least one lace engaging portion on an outwardly facing portion thereof in use, which outwardly facing portion engages a knotted shoelace to prevent the knot from slippage and the shoelace from becoming untied.

The clutch device described is disc shaped and has a disc shaped portion of tenacious elements, hooks, barbs or the like which engage and retain the shoelace.

The clutch element of the above invention holds the shoe laces in a tied position to prevent the shoe from loosening on the wearer's foot, however, a bow still has to be tied to engage the distal ends of the lace, which is then engaged by the tenacious elements.

The present invention is intended to overcome the above problems.

According to the present invention a laces tying device comprises a body provided with one or more apertures adapted to receive the lace with which the device is used, and clip means adapted to retain the portion of the lace ends extending through the apertures.

It will be appreciated that the above device can be used with any article provided with laces, for example trousers, dresses, coats and so on. However, in a preferred construction the device may be used with footwear provided with laces.

Preferably the body apertures are provided with a readily releasable fastening means, which is adapted to fasten the opposite portions of the lace body in position in the apertures.

In one construction the apertures are intersected with a bore, in which is disposed a spring-loaded clamp element. The clamp element may be provided with one or more apertures of corresponding size to the body apertures. In a preferred arrangement the clamp element is biased so that the clamp apertures and the body apertures are disposed out of alignment. The clamp element can be provided with a trigger, which when operated brings the clamp apertures and body apertures into alignment. With this arrangement the opposing ends of the lace can be threaded through the apertures when the trigger is operated, and held in place when the trigger is released.

In one construction a single body and clamp aperture is provided, through which both the opposite ends of the lace are threaded. However, in a preferred construction two body and two clamp apertures are provided, through which each of the opposite ends of the lace are threaded.

The clip means may be a retaining arm, mounted on a spring loaded hinge provided on the outer surface of the body. The arm may be biased shut, and be provided with lace engaging elements on its underside. Further, lace engaging

elements may be provided on the outer surface of the body, adjacent the lace engaging elements provided on the arm.

In a preferred embodiment of the invention, the retaining arm is adapted to retain the lace ends arranged as follows. First the lace ends extending from the apertures are arranged parallel to one another, then they are overlapped at a point approximately half way along their extending length. The point of overlap is then disposed under the retaining arm, which is adjacent the base of the extending length. This results in a bow of traditional appearance being formed, with the device replacing the knot in the centre.

Therefore, the invention also includes a method of using a device as described above, including the steps of:

1) Operating the trigger and threading the two opposite ends of the lace through the body apertures, then fastening the lace by releasing the trigger.
2) Arranging the lace ends extending from the apertures parallel to one another.
3) Overlapping the lace ends at a point approximately half way along their length.
4) Opening the clamping means and placing the point of overlap under the clamp arm.
5) Closing the clamping means onto the point of overlap.

In line with the above method, the lace engaging elements of the clip means may be adapted to retain the overlapped portion of the laces. The lace engaging elements provided on the underside of the arm may be elongate extensions. In a preferred construction approximately 6 extensions are provided. The extensions may extend from the underside of the arm towards the hinge at an angle less than 90 degrees. With this arrangement the extensions bias the lace material into the jaws created by the arm and the body. The lace engaging elements provided on the body can be the peaks of a roughened or corrugated surface adapted to prevent slippage of the lace material.

The invention also includes a laces tying device comprising a body provided with one or more apertures adapted to receive the lace with which the device is used, and clip means adapted to retain the portion of the lace ends extending through the apertures, and in which the body is further provided with a display portion.

The display portion can be adapted to display any number of display elements. In a preferred construction the display portion is a tab, which is adapted to receive a resilient cap provided with a display element. The resilient cap can be constructed from a plastics material, and can be adapted to provide a secure fitting to the tab. The display element can be anything suitable, for example a metal badge, a name tag, an advertising, or labelling tag, a toy or other trim element. In an alternative embodiment the display portion is provided with a non-removable display element.

The above invention is a combination of the present invention and features of the invention of UK Patent Application No. 0214786.6 in the name of the applicant, which discloses: display means for footwear provided with lacing, comprises a display portion and a footwear connection portion which has a number of apertures each adapted to receive one end of the lacing, and in which the display means is secured to the footwear by the tying together of the lacing ends passed through the apertures.

Preferably the components of the device are constructed from a plastics material, except the springs, which can be constructed from metal coils.

The present invention also includes an article provided with laces and a laces tying device comprising a body provided with one or more apertures adapted to receive the lace with which the device is used, and clip means adapted to retain the portion of the lace ends extending through the apertures.

The invention can be performed in various ways, but two embodiments will now be described by way of example, and with reference to the accompanying drawings, in which:

Figure 1 is a part cross-sectional side view of a laces tying device according to the present invention;

Figure 2 is a part cross-sectional side view of the laces tying device shown in Figure 1, in use;

Figures 3a to 3d are top views of the laces tying device shown in Figure 1 in use in a four consecutive configurations; and,

Figure 4 is a top view of a second laces tying device according to the present invention in use.

As shown in Figure 1 a laces tying device 1 comprises a body 2 provided with two apertures 3 (only one of which is visible), and clip means 4.

Aperture 3 is intersected with bore 5, which houses a clamp element 6 and a spring 7. The clamp element 6 is provided with two apertures 8 (only one of which is visible), which are of corresponding diameter to apertures 3. The spring 7 is connected to the clamp element 6, and biases the aperture 8 out of alignment with aperture 3. The clamp element 6 is provided with a trigger 9, the depression of which brings the apertures 8 and 3 into alignment.

Clip means 4 comprises a retaining arm 10, which is mounted on a spring loaded hinge 11 provided on the outer surface 12 of the body 2. The arm 10 is biased against the outer surface 12 of the body 2 by the spring loaded hinge 11. The arm 10 is further provided with elongate lace engaging extensions 13 on its underside 14. Six extensions 13 are provided, only two of which are visible. The arm 10 is also provided with an operating tab 15.

The arm 10 is formed into a curved shape, which extends from the top of the hinge 11 towards the foremost edge 16 of the body 2. The arm 10 is further

provided with an outer lip 17. The extensions 13 also extend from the arm 10 at an angle of less than 90 degrees. With this arrangement the arm 10 and extensions 13 bias the lace material inside the clip means 4.

The body 2 is also provided with a lace engaging portion 18 comprising a roughened or corrugated surface, which is adapted to prevent slippage of the lace material.

As shown in Figure 2, one end portion 19 of a pair of laces has been threaded through apertures 3 and 8. The spring 7 pushes the clamp element 6 out of alignment with aperture 3, which holds the portion 19 in place. A bow 20 has been formed from the portions of lace which extend from the body 2. The bow 20 is held in place by the retaining arm 10, which is held down by the hinge 11. The extensions 13 and the portion 18 combine to further retain the bow 20 in position.

Figures 3a to 3d show how the bow 20 was formed. The laces were threaded through the apertures 3 and 8, until two approximately equal length lace end portions 19 and 21 extend from the body 2.

The lace portion 19 and 21 are arranged parallel to one another, as shown in Figure 3a.

Then the lace portions 19 and 21 are overlapped once, approximately half way along their length, as shown in Figure 3b.

The overlapped portion 22, is then held fast, and the arm 10 is raised. The overlapped portion 22 is then moved under the arm 10, as shown in Figure 3c and 3d.

Once the overlapped portion 22 is under the arm 10, the arm 10 is lowered, and the lace portions 19 and 21 are held in place, in the manner of a bow.

It will be appreciated that the above method required two factors. First of all, the lace end portions 19 and 21, must be held firmly in place at their bases 23 and 24, adjacent the body 2. Secondly, the overlapped portion 22 must be held fast. With these two factors applied, when the overlapped portion 22 is moved towards, and under the arm 10, a bow 20 comprising two loops 25 and 26, and two ends 27 and 28 is formed, because the overlapped portion 22 is brought adjacent the bases 23 and 24 of the lace end portions 19 and 21.

Figure 4 shows a lace tying device 30, which is substantially similar in construction to device 1 as shown in Figures 1 to 3. However, a display portion 31 is also provided, which extends from the body 32 of the device 30.

A display element 33 comprising a cap 34 and a display member 35 is releasably attached to the display portion 31. The display element 34 can be removed and replaced with any number of alternatives. Other display elements can be anything suitable, for example a metal badge, a name tag, an advertising, or labelling tag, a toy or other trim element. In an alternative embodiment (not shown) the display portion is provided with a non-removable display element, or the whole body is shaped and configured to comprise the display portion.

In one other alternative embodiment the arm of the clip means can be adapted to carry a display element, or it can be shaped and patterned to be the display element itself.

As is shown in Figure 4, the device 30, or the device 1, can be used with a shoe 36 provided with laces 37. It will however be appreciated that the device can be used with any article provided with laces, for example trousers, dresses, coats and so on.

Thus a lace tying device is provided which can tie laces together, and form a traditional shaped bow, without the need to form a conventional knot and bow, which can be difficult for the young, the elderly or the disabled.

CLAIMS

1. A laces tying device comprising a body provided with one or more apertures adapted to receive the lace with which the device is used, and clip means adapted to retain the portion of the lace ends extending through the apertures.

2. A laces tying device as claimed in Claim 1 in which the apertures are provided with readily releasable fastening means, adapted to fasten a portion of the body of the laces in the apertures.

3. A laces tying device as claimed in Claim 2 in which the apertures are intersected with a bore, in which is disposed a spring loaded clamping element.

4. A laces tying device as claimed in Claim 3 in which the clamping element is provided with one or more apertures of corresponding size to the apertures provided in the body.

5. A laces tying device as claimed in Claim 4 in which the apertures provided in the clamping element are biased out of alignment with the apertures provided in the body.

6. A laces tying device as claimed in Claim 5 in which the clamping element is provided with a trigger, the operation of which brings the apertures provided in the clamping element and the apertures provided in the body into alignment.

7. A laces tying device as claimed in any of the above claims in which two apertures are provided in the body, through which the opposite ends of the lace can be threaded.

8. A laces tying device as claimed in any of the above Claims in which the clip means comprises a retaining arm, which is mounted on a spring loaded hinge provided on the outer surface of the body, and in which the arm is biased by the hinge towards the outer surface of the body.

9. A laces tying device as claimed in Claim 8 in which the retaining arm is provided with lace body engaging elements on its underside.

10. A laces tying device as claimed in Claim 9 in which the lace engaging elements are elongate extensions.

11. A laces tying device as claimed in Claim 10 in which six elongate extensions are provided.

12. A laces tying device as claimed in Claim 11 in which the elongate extensions extend from the underside of the arm towards the hinge at an angle of less than 90 degrees.

13. A laces tying device as claimed in any of Claims 9 – 12 in which lace engaging elements are provided on the outer surface of the body, adjacent the lace engaging elements provided on the arm.

14. A laces tying device as claimed in Claim 13 in which the lace engaging elements provided on the body are formed by a roughened or corrugated surface portion.

15. A laces tying device according to any of the above Claims, which is provided with a display portion.

16. A laces tying device according to Claim 15 in which the display portion is adapted to display any number of alternative display elements.

17. A laces tying device as claimed in any of the preceding Claims in which the tying device is adapted for use with footwear provided with laces.

18. A laces tying device substantially as described herein and with reference to the accompanying drawings.

19. An article provided with a fastening using laces, provided with a laces tying device according to any of the preceding Claims.

20. A method of using a laces tying device according to any of the preceding Claims, including the steps of:

1) Operating the trigger and threading the two opposite ends of the lace through the body apertures, then fastening the lace by releasing the trigger.
2) Arranging the lace ends extending from the apertures parallel to one another.
3) Overlapping the lace ends at a point approximately half way along their length.
4) Opening the clamping means and placing the point of overlap under the clamp arm.
5) Closing the clamping means onto the point of overlap.

ABSTRACT

A laces tying device comprising a body provided with one or more apertures adapted to receive the lace with which the device is used, and clip means adapted to retain the portion of the lace ends extending through the apertures.

FIG 1

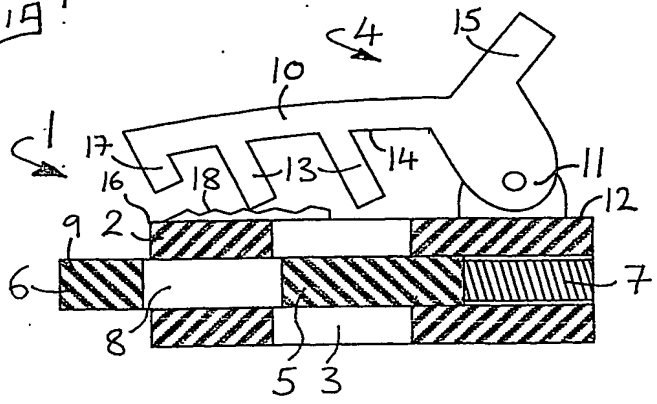

FIG 2

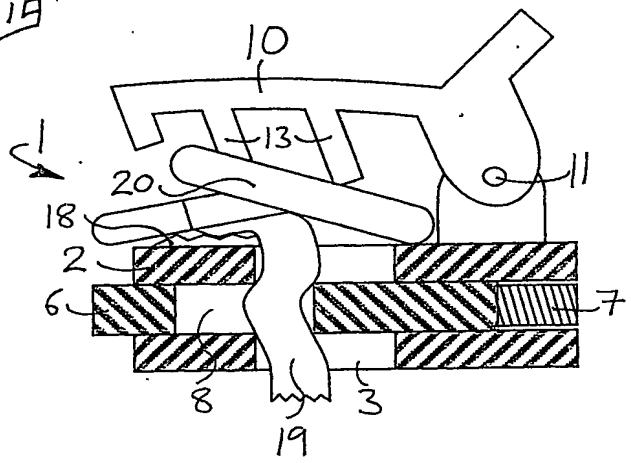

Fig 3a

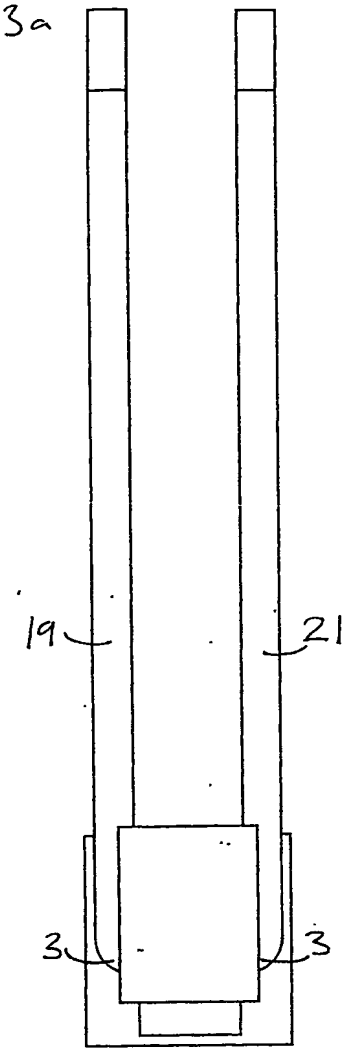

Fig 3b

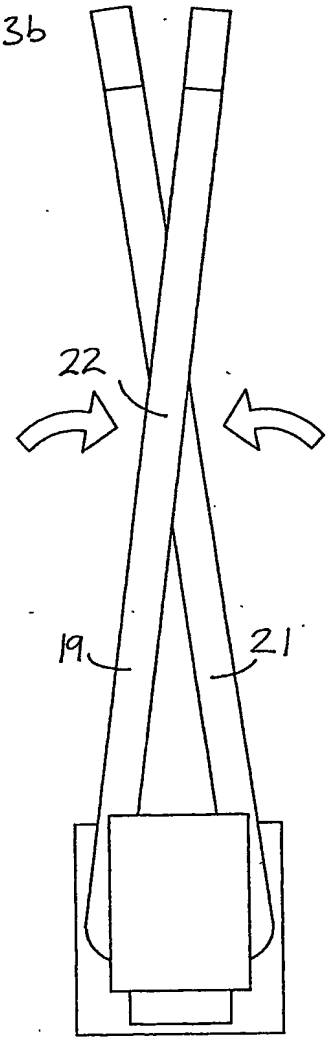

Fig 3c

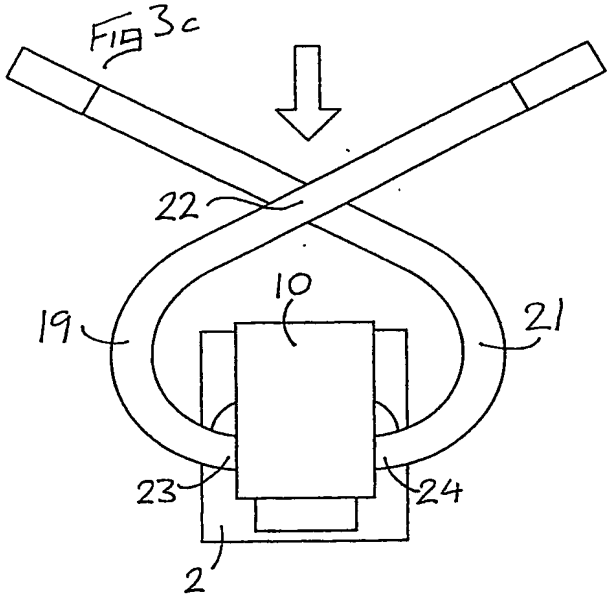

Fig 3d

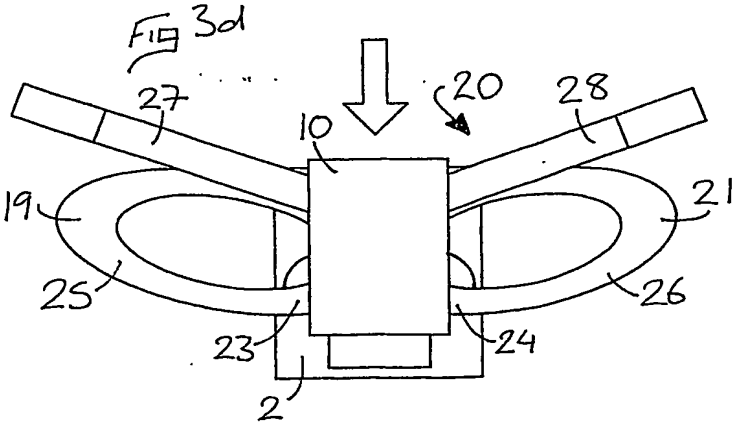

Fig 4